Assistive Camera Control

ECE-405

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Requirements Capture

Introduction

Our design project is an assistive camera device. This device is designed to help a person to easily control the zoom, pan and tilt of a DSLR camera. The camera will be mounted on the device, and will be controlled by a computer through a switch interface/scanning system. Upon completion, the client will be able to control all aspects of the camera through her computer, including pan, tilt, zoom, and various settings.

Requirements

- Zoom drive system
    - Able to turn lens clockwise and counterclockwise
    - Able to fully zoom in and out with a quarter turn of the lens
    - Variable speed
    - Controlled through the client's MacBook Pro
    - Must be compact
    - Must fit 70.5 x 74mm lens

- Pan/Tilt drive system
    - Pan at least +/- 45 degrees from center position
    - Variable speed
    - Controlled through the client's Macbook Pro

- Software
    - Add ability to control zoom
    - Add ability to support pan and tilt
    - Add variable speed capabilities to current software
    - Add ability to create programed sequences for camera to follow

- Power
    - Devices will be powered from the client's on board power supply
    - Devices will have fault and overload protection

Summary

The overall goal of this project is to improve the control capabilities of the client's camera due to their limited mobility. By adding a device on the camera to control the zoom of the telephoto lens, the client will be able to control all aspects of the camera. In addition to the zoom system, we will be replacing the existing pan/tilt system with a faster pan/tilt system with more precise control. We also will be providing software to control the system with various methods of control, including preset sequences.